

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A workpiece inspection system comprising a machine tool which has a controller operable to perform a workpiece producing process and a workpiece inspection process, the workpiece inspection process comprising the steps of:
 - ~~mounting the~~ mounting a measurement device on the machine tool;
 - changing the position of the workpiece relative to the measurement device;
 - ~~_____ issuing time based synchronisation signals defining a plurality of instants;~~
 - causing measurements of the workpiece to be ~~taken by the measurement device;~~ recorded which in particular involves:
 - ~~_____ issuing synchronisation signals defining a plurality of instants;~~
 - ~~_____ recording a first data set of the comprising varying data relating to the position of the machine at least at some of the instants;~~ machine; and
 - ~~_____ recording a second data set of the comprising varying data from the measurement device relating to measurements of the workpiece at least at some of the instants;~~ workpiece;
 - ~~_____ wherein the synchronisation signals are used in the recording of the first and second data sets such that simultaneous machine position and workpiece measurement data can be determined and subsequently combined.~~
 - ~~_____ combining the first data set with the second data set such that each element of the two sets are associated with the same real time or synchronisation signal; and~~
 - ~~_____ outputting the combined data to a further software process which is used to improve the workpiece producing process.~~

2. (Original) A workpiece inspection system as claimed in claim 1 wherein the synchronisation signal issues from the controller.

3. (Currently Amended) A workpiece inspection system as claimed in claim 1 ~~wherein in which~~ the synchronisation ~~signal is~~ signals are used to ~~identify the real time at which at least some of the members of~~ label at least some of the recorded machine position data and/or workpiece measurement data in the first and second data sets of data from the machine tool and measurement device were recorded in order that the position data and the measurement data can be combined with a related real time, such that simultaneous machine position data and workpiece measurement data can be determined and subsequently combined.

4. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the measurement device is monitored at intervals which are more frequent than the occurrences of the said ~~intervals~~ instants and only selected data is recorded to the second set and/or the data is manipulated prior to its recording.

5. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the system further includes software for combining the data of the first and second ~~sets, sets and, when combined, for influencing the workpiece producing process performed at the controller of the machine tool.~~

6. (Previously Presented) A workpiece inspection system as claimed in claim 1 wherein the system further includes an interface circuit which accepts the synchronisation signal and the varying data from the measurement device.

7. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the system includes a stop signal path from the measurement device to the machine controller and the machine controller ~~stops~~ can be configured to stop the machine if a stop signal is received by the machine controller.

8. (Original) A workpiece inspection system as claimed in claim 1 wherein the measurement device is a contact type dimensional measurement probe and the varying data relates to changes in the deflection of a workpiece contact stylus connected to the probe.

9. (Original) A workpiece inspection system as claimed in claim 5 wherein the first set of data is corrected to at least reduce positional errors of the machine tool, prior to combination with the second set.

10. (Currently Amended) A workpiece inspection system as claimed in claim 1 wherein the first and/or second sets of data are manipulated such that the manipulated data represents approximately the data which would have been obtained had the elements of two sets been recorded at the same time-simultaneously.

11. (Original) A workpiece inspection system as claimed in claim 1 wherein the controller issues a further signal which enables the recording of the second set.

12. (Original) Software for controlling a workpiece inspection system according to the steps claimed in claim 1.

13. (Currently Amended) A workpiece inspection system comprising a machine tool having a first part, a second part movable relative to the first part, and a controller operable to perform both a workpiece production process and a workpiece inspection process and for producing varying data relating to the relative position of the first and second parts, the system comprising also a workpiece measurement device attached to the second machine part for producing varying data relating to measurements of the workpiece and a synchronisation signal producer, the system being operable such that the following workpiece inspection steps are performed:

mounting the workpiece measurement device on the second part of the machine tool;

changing the position of the workpiece relative to the measurement device;

issuing synchronisation signals defining a plurality of instants;

causing measurements of the workpiece to be ~~taken by the measurement device;~~recorded which in particular involves:

~~— issuing synchronisation signals defining a plurality of instants;~~

~~— recording a first data set of the comprising varying machine position data relating to the relative position of the first and second parts of the machine at least at some of the instants;~~machine;

~~— recording a second data set of the comprising varying measurement device measurement data from the measurement device relating to measurements of the workpiece at least at some of the instants;~~workpiece;

~~— wherein the synchronisation signals are used in the recording of the first and second data sets such that simultaneous machine position data and workpiece measurement data can be determined and subsequently combined.~~

~~— combining the first data set with the second data set such that each element of the two sets are associated with the same real time or synchronisation signal; and~~

~~— outputting the combined data to a further software process which is used to improve the workpiece producing process.~~

14. (New) A workpiece inspection system as claimed in claim 5, wherein the system further includes software for influencing the workpiece producing process performed at the controller of the machine tool on the basis of the combined data.